Calendar No. 732

98TH CONGRESS, 2d Session } SENATE { REPORT 98–372

GROUND WATER RECHARGE—STUDY AND DEMONSTRATION PROGRAM

MARCH 29 (legislative day, MARCH 26), 1984.—Ordered to be printed

Mr. MCCLURE, from the Committee on Energy and Natural Resources, submitted the following

REPORT

[To accompany H.R. 71]

The Committee on Energy and Natural Resources to which was referred the act (H.R. 71) to authorize and direct the Secretary of the Interior to engage in a special study of the potential for ground water recharge in the High Plains States, and for other purposes, having considered the same, reports favorably thereon without amendment and recommends that the act do pass.

PURPOSE

As reported by the Senate Committee on Energy and Natural Resources, H.R. 71 would authorize a two-phase program of study and demonstration projects to examine the potential for artificial recharge of aquifers. The act would authorize the appropriation of $500,000 for the phase I study and $20 million for the phase II program of additional study and ground water recharge demonstration projects. Funds authorized and appropriated for phase II require matching on a four-to-one basis by States and/or other non-Federal entities.

BACKGROUND

Ground water depletion, that is pumping from underground aquifers at a rate greater than replenishment, has long been a recognized problem in many areas of the United States. Problems have been particularly acute in the arid West where large irrigated acreages, as well as several urban areas, are dependent upon ground water resources. Particular attention has focused on the Ogallala Aquifer, which encompasses 156,000 square miles and underlies portions of New Mexico, Oklahoma, Colorado, Kansas, Nebraska, and Texas. In

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Texas alone, 4 million to 6 million acre-feet of water are withdrawn from the Ogallala Aquifer each year in comparison to the annual recharge from precipitation of only 200,000 acre-feet annually. Extensive drawdowns of the aquifer, thereby increasing pumping costs to the consumer, are widespread. In turn, it is estimated that from 2 million to 4 million acres of agricultural land in Texas will be turned back to dry land farming within 40 years.

"Water Policies for the Future," the final report of the National Water Commission to the President in 1973, recognized the need for an intensive investigation of aquifer systems and included as a program goal the determination of the suitability of overlying land and wells for artificial recharge programs. The technical aspects of artificial recharge through such methods as injection wells, percolation ponds, and spreading basins are well known, but have been tested on a limited basis. It is not clear as to the application of these various techniques to a variety of soil and geologic conditions.

Enactment of H.R. 71 would authorize a cooperative Federal/non-Federal program of study and actual testing of artificial recharge methods. Noteworthy is the potential application of the results of the investigation and demonstration programs to areas of the United States not included within the geographical scope of the act. In addition, aquifier recharge may, in some instances, provide a method of underground storage in lieu of traditional dams and reservoirs.

LEGISLATIVE HISTORY

H.R. 71 was introduced on January 3, 1983, by Mr. Bereuter for himself and Mr. Kazen, Mr. Lujan, Mr. Brown of Colorado, and Mr. Kogovsek. Hearings before the Subcommittee on Water and Power Resources of the House Committee on Interior and Insular Affairs were held on March 22 and April 12, 1983. The measure was reported by the House Committee on May 16, 1983 (H. Rept. 98–167) and passed the House on June 20, 1983.

An identical measure, S. 1811, was introduced on August 4, 1983, by Senator Nickles and is cosponsored by Senators Exon, Zorinsky, and DeConcini. Hearings before the Subcommittee on Water and Power on both S. 1811 and H.R. 71 were held in Washington, D.C., on September 29, 1983 (S. Hrg. 98–469) and in Woodward, Okla., on February 17, 1984.

The Senate Committee on Energy and Natural Resources, in an open business session on March 20, 1984, by majority vote of a quorum present ordered H.R. 71 reported without amendment.

COMMITTEE RECOMMENDATION AND TABULATION OF VOTES

The Senate Committee on Energy and Natural Resources, in an open business session on March 20, 1984, by majority vote of a quorum present recommended that the Senate pass H.R. 71 without amendment.

The rollcall vote on reporting the measure was 15 yeas and 2 nays as follows:

YEAS	NAYS
Mr. McClure	Mr. Metzenbaum [1]
Mr. Hatfield	Mr. Bradley
Mr. Weicker [1]	
Mr. Domenici	
Mr. Wallop	
Mr. Warner	
Mr. Murkowski	
Mr. Nickles	
Mr. Hecht	
Mr. Chafee	
Mr. Heinz [1]	
Mr. Johnston	
Mr. Ford	
Mr. Matsunaga [1]	
Mr. Melcher	

[1] Indicates voted by proxy.

SECTION-BY-SECTION ANALYSIS

Section 1 contains the title of the bill.

Section 2, for the most part, is self-explanatory and geographically confines activities pursuant to the act to the "High Plains States" as identified in the section and "other Reclamation Act States" as identified in section 1 of the Reclamation Act (act of June 17, 1902, ch. 1093, 32 Stat. 388). The "other Reclamation Act States" so identified are Arizona, California, Idaho, Montana, Nevada, North Dakota, Oregon, Utah, and Washington. The committee notes that section 2 specifically provides that the Bureau of Reclamation shall consult with the States in carrying out the act.

Section 3 provides that during phase I, the Bureau, in consultation with the States and other appropriate Federal agencies, shall develop a detailed plan of demonstration projects, making maximum use of the resources and assistance available from State and local entities. The committee notes that the Bureau, in preparation of the plan, is required to consult with the respective States.

Section 3 also establishes the physical criteria for selection of demonstration project sites. Among the criteria listed is "an available surface water supply." The committee intends this to mean a water supply which is generally local in nature. In light of the physical requirements of a recharge demonstration project, there must be some flexibility as to the availability of a surface water supply; however, it is not the intent of the committee that H.R. 71 imply support of, or be used for, the importation of water from great distances for the purpose of recharging aquifers. In light of the moderate level of funding authorized by H.R. 71, reality precludes massive water transfer projects for aquifer recharge under the act. In turn, the committee notes that such water transfer schemes are not within the purview of the studies authorized by the act.

The committee notes that "playa lakes," which are small ponds or lakes which appear temporarily after precipitation, are available surface water supplies under the act.

Section 4 authorizes and directs the Bureau of Reclamation, subject to State water laws and interstate water compacts, to design, construct, and operate grour d water recharge demonstration projects. The committee strongly emphasizes the requirement for strict compliance with State water law and interstate compacts and the necessity that appropriate State water rights and permits issued pursuant to State law be acquired for ground water recharge demonstration projects.

Section 5 is self-explanatory.

Section 6 is self-explanatory.

Section 7 is self-explanatory.

Section 8 is self-explanatory.

COST AND BUDGETARY CONSIDERATIONS

The following estimate of costs of this measure has been provided by the Congressional Budget Office.

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, D.C., March 22, 1984.

Hon. JAMES A. MCCLURE,
Chairman, Committee on Energy and Natural Resources, U.S. Senate, Dirksen Senate Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the attached cost estimate for H.R. 71, the High Plains States Ground Water Demonstration Program Act of 1983.

If you wish further details on this estimate, we will be pleased to provide them.

Sincerely,

ERIC HANUSHEK
(For Rudolph G. Penner).

CONGRESSIONAL BUDGET OFFICE—COST ESTIMATE

MARCH 22, 1984.

1. Bill number: H.R. 71.

2. Bill title: High Plains States Ground Water Demonstration Program Act of 1983.

3. Bill status: As ordered reported by the Senate Committee on Energy and Natural Resources, March 20, 1984.

4. Bill purpose: This bill directs the Secretary of the Interior to conduct an investigation of ground water recharge technologies and to design, construct and operate not less than 21 demonstration projects for determining whether various recharge technologies may be applied to diverse geologic and hydrologic conditions. The bill specifically authorizes the appropriation of funds in two phases to carry out the investigation and demonstration projects.

5. Estimated cost to the Federal Government:

	Millions
Estimated authorization level:	
Fiscal year:	
1984	$21.2
1985	-----
1986	-----
1987	-----
1988	-----
1989	-----
Estimated outlays:	
Fiscal year:	
1984	.1
1985	.5
1986	1.7
1987	3.9
1988	6.5
1989	6.2

In addition to the outlays in the table above, an estimated $2.3 million will be spent in fiscal year 1990.

The costs of this bill fall within budget function 300.

Basis of estimate: For the purpose of this estimate, it is assumed that the bill will be enacted by June 1984, and that the full amount authorized will be appropriated.

The bill specifically authorizes the appropriation of $0.5 million to carry out phase I of the program, a detailed plan and specific project recommendations. The bill further specifies that this plan is to be completed within 24 months of program funding. Based on information from the Bureau of Reclamation, it is estimated that outlays for this plan will be approximately $0.1 million in fiscal year 1984, $0.3 million in fiscal year 1985, and $0.1 million in fiscal year 1986.

During phase II, the demonstration projects are to be designed, constructed and operated. H.R. 71 authorizes the appropriation of $20 million (in October 1983 dollars) to carry out this program, and requires a final report within 5 years of the initiation of phase II. The estimated outlays for phase II are based on historical information on spending patterns for similar federal activities.

6. Estimated cost to State and local governments: H.R. 71 makes the funds available for phase II contingent upon matching funds from nonfederal entities. Under the bill, Federal funds would match—on a four-to-one basis—funds provided by States; their political subdivisions, or other non-Federal entities, including in-kind services or other contributions. Thus, non-Federal contributions would be valued at $5.2 million, assuming appropriation of the full amounts authorized and willingness of non-Federal entities to participate. The cost to State and local governments would depend on the extent of participation by other non-Federal entities, and the extent of in-kind contributions.

7. Estimate comparison: None.

8. Previous CBO estimate: On May 13, 1983, the Congressional Budget Office transmitted a cost estimate on H.R. 71, as ordered reported by the House Committee on Interior and Insular Affairs, May 10, 1983. The Senate bill is identical to that House bill. Differ-

ences between the two estimates are due to differences in the assumed date of enactment.

9. Estimate prepared by: Kathy Gramp.

10. Estimated approved by:

C. G. NUCKOLS
(For James L. Blum,
Assistant Director for Budget Analysis.

REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the committee makes the following evaluation of the regulatory impact which would be incurred in carrying out H.R. 71 as reported.

The act is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses. As reported, H.R. 71 would authorize a program of study and related demonstration projects to develop methods of artificial ground water recharge.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Other than the studies and reports specifically authorized in H.R. 71 and the normal paperwork associated with construction and operation of projects of a similar nature, little, if any, additional paperwork would result from the enactment of H.R. 71.

EXECUTIVE COMMUNICATIONS

The pertinent legislative reports and communications received by the committee from the Office of Management and Budget and the Department of the Interior relating to H.R. 71 are set forth below. It should be noted that the communication from the Department of the Interior refers to S. 1811 which is identical to H.R. 71.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF MANAGEMENT AND BUDGET,
Washington, D.C., October 6, 1983.

Hon. JAMES A. MCCLURE,
Chairman, Committee on Energy and Natural Resources,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to your requests of August 5, 1983, and August 9, 1983, for the views of the Office of Management and Budget on H.R. 71 and S. 1811, identical bills "To authorize and direct the Secretary of the Interior to engage in a special study of the potential for ground water recharge in the High Plains States, and for other purposes."

The Office of Management and Budget concurs in the views of the Department of the Interior as expressed by Mr. Robert N. Broadbent, Commissioner of the Bureau of Reclamation, in his September 29, 1983, testimony before the Water and Power Subcommittee of the Senate Committee on Energy and Natural Resources. Accordingly, we support enactment of S. 1811 only if it is amended to include the administration's recommendations.

Sincerely,

JAMES M. FREY,
Assistant Director for Legislative Reference.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., November 7, 1983.

Hon. JAMES A. MCCLURE,
Chairman, Committee on Energy and Natural Resources, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This responds to your request for our views on S. 1811, a bill "To authorize and direct the Secretary of the Interior to engage in a special study of the potential for ground water recharge in the High Plains States, and for other purposes."

We recommend enactment of S. 1811 only if it is amended as discussed in this report.

S. 1811 would authorize and direct the Secretary of the Interior to engage in a two-phase program on the potential of ground water recharge in the High Plains States and other Reclamation Act States. During phase I the Bureau of Reclamation would develop a detailed plan on the feasibility of demonstration projects and during phase II the Bureau would design, construct and operate these projects.

Many of the Reclamation States, especially in the High Plains area, are experiencing serious ground water overdraft problems. While conjunctive use, conservation, and management of existing ground water supplies are most important, one of the tools available to areas faced with declining water tables is artificial ground water recharge. We believe that in certain favorable situations the depletion of ground water acquifers and basins could be alleviated to a significance degree by artificial recharge.

Our principal recommendations on S. 1811 relate to phase II and the appropriation ceiling. We have enclosed specific language for implementing these and other suggested amendments.

We recommend that the provisions dealing with phase II be deleted. We cannot support authorization of a phase II demonstration program until feasibility studies have been completed and reviewed by the executive branch. Any recommendations to the Congress for construction authority for demonstration projects would include appropriate cost-sharing provisions.

We also recommend that the authorization of appropriation of funds for phase I in section 5 be increased to $1 million. The current amount of $500,000, spent at $250,000 annually for the 2 years of phase I, would provide only $11,900 per year for study of each of the 21 sites. This amount would not cover the cost of data accumulation, meetings, and salaries for the kind of study we believe is envisioned. It is our view that the Federal funds expended under phase I of S. 1811 would be nonreimbursable.

In the Bureau of Reclamation and the Geological Survey, we have the technical expertise that is required to plan and manage the investigation program mandated by the bill. S. 1811 would provide a highly desirable opportunity and a challenge to demonstrate our leadership and technical capability in the field of ground water management.

The Office of Management and Budget has advised that there is no objection to the presentation of this report from the standpoint of the administration's program.

Sincerely,

GARREY E. CARRUTHERS,
Assistant Secretary.

Enclosure.

DEPARTMENT OF THE INTERIOR SUGGESTED AMENDMENTS TO S. 1811

1. On page 1, lines 7 and 8 strike out "shall" and all that follows through "establish" and insert in lieu thereof "shall conduct an investigation of".

2. On page 2, line 2, after "Texas," insert "Montana".

3. On page 2, line 11, strike out "During phase I, the" and insert in lieu thereof "The".

4. On page 2, line 15, insert "on the feasibility" after "plan."

5. On page 3, line 1, strike out "This" and all that follows through "reservoir." on line 9, and insert in lieu thereof:

> This plan shall be developed through examination of not less than a total of 12 potential recharge sites in the High Plains States and not more than a total of nine potential recharge sites in other Reclamation Act States. The selection of demonstration project sites shall be based on consideration of local ground water depletion, local availability of recharge water supplies, and other technical and economic factors affecting the feasibility of ground water recharge operations.

6. On page 3, line 12, strike out "replacement" and insert in lieu thereof "recharge".

7. On page 3, line 17, strike out "phase II" and insert in lieu thereof "a demonstration program".

8. On page 3 strike out lines 21 through 25.

9. On page 4, line 1, redesignate subsection (d) as subsection (c). On page 4, line 2, strike out "phase I" and insert in lieu thereof "the purposes of this Act".

10. On page 4, strike out line 6 and all that follows through page 5, line 16.

11. On page 5, line 17, redesignate section 5 as section 4. On page 5, line 18, strike out "$500,000" and insert in lieu thereof "$1,000,000". One page 5, line 19, strike out "phase I" and insert in lieu thereof "the purposes of this Act". On page 5, line 21, after "all" insert "potential".

12. On page 5, strike out line 24 and all that follows through line 16 on page 6.

13. On page 6, line 17, redesignate section 8 as section 5.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee notes that no changes in existing law would be made by the act, H.R. 71 as reported.

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